

REMARKS/ARGUMENTS

Rejection under 35 U.S.C. §103(a)

The Office Action states that Claims 1, 3-4, 6-12 and 14-17 are rejected under 35 U.S.C. §103(a) as being unpatentable in view of Garcia-Luna-Aceves et al. (US Patent N° 6,683,865) (hereinafter Garcia) in view of Ahmed et al. (EP 1137224) (hereinafter Ahmed) in further view of Doui et al. (US20020141762) (hereinafter Doui).

In response thereto, Applicant has amended independent claims 1 and 16. More precisely, claim 1 has been amended to include the limitation “*without, for each of said nodes, knowledge of remaining distant nodes of the plurality of nodes of the network*” with respect to the generation of the plurality of dynamic routes. Claim 1 has also been further modified to include the limitation “*through said wireless dynamic network without configuring each node of the wireless network in accordance with the first network*” with respect to the establishing of a tunnel between the first and second gateway.

The Applicant respectfully submits that the newly submitted claim 1 is fully supported by the disclosure.

The first limitation discussed above is well illustrated in Figure 7 which shows that each node neighboring a given node is visible by the given node while the nodes that are not in direct neighboring of the given node are not visible. Paragraphs [0066] to [0073] describe in details Figure 7.

The second limitation discussed above is well described in paragraph [0017] which specifies that one of the objects of the invention is to provide a method for communicating from a first processing unit to a second processing unit through a wireless network without reconfiguring each wireless node of the wireless network in accordance with a network comprising the first processing unit.

The Examiner will also note that the preamble of claim 1 has also been slightly modified to more clearly define the subject matter for which protection is sought.

The Examiner will also note that the limitation previously added in response to the Office Action of September 4, 2007 and not considered by the Examiner as involving an inventive step has been canceled from claim 1. This limitation is now the object of newly submitted claim 25.

Claim 7 has been canceled.

Claims 10 and 12 have been amended to correct typographic errors.

Claim 16 has been amended similarly to claim 1 and includes the same added limitations.

Claim 26 has been added.

The Applicant respectfully submits that new claim 1 as amended is not anticipated nor render obvious by Garcia.

More precisely, claim 1, as amended, defines a method for establishing a communication link between a first network and a second network through a wireless dynamic network comprising a plurality of nodes. In the claimed method, each of the nodes of the wireless dynamic network is used to generate a plurality of dynamic routes. The generating is defined as comprising, for each given node, detecting a neighboring node to the given node, collecting data identifying the detected neighboring node and transmitting to the first gateway the data identifying the detected neighboring node with data identifying the given node to thereby generate the plurality of dynamic routes. Thus, each node of the network is used independently to generate the routes, without, for each node, knowing the remaining distant nodes that are not in the direct neighborhood of the given node.

Once the dynamic routes have been established at the first gateway, one of these pre-established routes is selected to establish a tunnel between the first gateway and the

second gateway to thereby establish a direct communication link between the first processing unit of the first network and the second processing unit of the second network. As claimed, the direct communication link is established through the wireless network without configuring each node of the wireless network in accordance with the first network. Indeed, as mentioned in paragraph [0056], in one embodiment, the wireless communication network is a dynamic network where wireless nodes may be added or removed randomly. It is therefore a great advantage to establish a direct communication link between the first and the second processing units through a dynamic network using the method claimed in claim 1, i.e. without configuring each node of the wireless network in accordance with the first network. As it will be detailed thereafter, the claimed method, contrary to the prior art known methods that require costly resources and maintenance, does not require that each wireless node of the wireless network be configured in accordance with other wireless nodes and even in accordance with the surrounding networks, i.e. the first network and the second network.

By contrast, Garcia disclosed a method for forwarding a packet over a network according to a plurality of protocols. The method is particularly devised to enable multiple routing and switching methods in the same network. The packet to be forwarded includes a routine operation code for instructing the routing node which one of several protocols to apply for forwarding the packet.

According to the Examiner, Garcia discloses each of the characteristics of claim 1 as previously presented, except for detecting a neighboring node, collecting data identifying the detected node and transmitting the data.

The Examiner refers to col. 11 lines 1-25 of Garcia to state that the dynamic routes are generated using each of the plurality of nodes. The Examiner also relies on this passage to state that the selecting of one of the plurality of routes as claimed in claim 1 is also taught by Garcia.

Col. 10 line 27 to col.11 line 25, which comprises the passage mentioned by the examiner, describes a protocol for deriving source routes with local link identifiers. As mentioned and as well detailed in Garcia US application No. 09/418,700 to which it is referred to on col. 10, line 33, the routes are established with labeled routing trees (LRTs). Other similar alternatives are proposed but, as mentioned in Col. 10, line 64, the preferred approach is the one using LRTs, as proposed in Garcia US application No. 09/418,700.

Thus, the establishing of routes in Garcia is based on partial network topologies using a head node and a tail node, which is very different from the establishing proposed in claim 1 of the present application. As previously mentioned, in claim 1 of the present invention, the routes are established using each node independently, without, for each node, knowledge of nodes that are not neighboring nodes. This is particularly advantageous other the method using the LRTs, particularly in the case of a dynamic network wherein the nodes may change frequently.

Indeed, in Garcia, if a node disappears, each LRT using this node is no longer correct and the method has to regenerate new LRTs.

In Garcia, the establishing of routes requires that each node knows his neighboring nodes, as well as distant nodes since it is based on partial topologies.

Therefore, Garcia does not disclose nor even suggest a method for establishing the routes wherein the routes are established without, for each given node, knowledge of the distant nodes that are not a direct neighbor of the given node.

The Applicant further submits that in Garcia, search packets are used for finding an intended destination to which a signal has to be sent. As mentioned in Col. 11, if a router of the network does not know how to reach the final destination, it broadcasts a search packet to each of the neighboring nodes. A router receiving a search packet that does not have a routing entry for the intended destination forwards the packet to each of its

neighbors. A router receiving the search packet that has a source route sends a reply with the entire source route.

In the method of claim 1, data identifying a node is collected from a neighboring node. No search packet is sent to the node per se. Once the node detection has been completed, the routes are generated. Then, one of the routes is selected, a tunnel is established using the selected route to establish the direct communication link between the first and the second processing units, thanks to the first gateway which is adapted to access the first processing unit and the second gateway which is adapted to access the second processing unit. This is different from Garcia in which search packets are sent to different intermediary routers of the wireless network to find an intended destination.

In other words, in claim 1, a direct link is first established between the first and the second processing units, and then the signal to be transmitted is sent from the first processing unit to the second processing unit according to the pre-established selected dynamic route. Garcia does not disclose nor suggest such limitations as specifically claimed in claim 1.

The Applicant further submits that in Garcia, since the disclosed method for forwarding a packet over a network is particularly devised to enable multiple routing protocols, the nodes of the dynamic network have to be configured in accordance with the other network. Garcia does not disclose how to establish a direct communication link between a first processing unit of a first network and a second processing unit of a second network without configuring each node of the wireless network in accordance with the first network, as specifically claimed in claim 1.

In view of the above, it is respectfully submitted that claim 1 as amended is new and inventive in view of Garcia.

As previously mentioned, the Examiner states that each characteristic of claim 1 as previously presented is taught by Garcia except for the limitation "detecting a

neighboring node, collecting data identifying the detected node and transmitting the data.”

The Examiner then states that this latter limitation is disclosed in Ahmed to thereby conclude that claim 1 as previously presented is obvious in view of the prior art.

The Applicant agrees that in Ahmed, the nodes detect their neighboring nodes to enable all nodes to construct its neighborhood.

However, contrary to the present invention as defined in claim 1 as presently amended, the nodes have to know local topologies, as well as at least approximate location information for at least some nodes outside the local area. Thus, Ahmed does not disclose nor suggest the limitation *“without, for each of said nodes, knowledge of remaining distant nodes of the plurality of nodes of the network”*.

Moreover, as previously explained, in claim 1, the routes are dynamically pre-established and one of the routes is selected prior to the transmission of the signal to transmit. In Ahmed, the signal to transmit is first forwarded on the network and the method of Ahmed is performed to find a route to the final destination. This is completely different from claim 1.

It is also respectfully submitted that Ahmed does not disclose nor suggest the limitation *“without configuring each node of the wireless network in accordance with the first network”*.

In view of the above, the Applicant respectfully submits that claim 1 as amended is new and non obvious in view of the cited prior art.

Since claims 3-4, 6, 8-12, 14-15 and 25 all depend of claim 1, they are also believed to be patentable in view of the cited prior art.

The Examiner will note that the Applicant has amended claim 16 to add limitations similar to the ones added to claim 1.

The Applicant therefore believes that new claim 16 as amended is new and non obvious in view of the cited prior art.

Since claims 17-20 and 26 all depend of claim 16, they are also believed to be patentable in view of the cited prior art.

In view of the foregoing, reconsideration of the rejection of claims on file is respectfully requested. It is believed that the new claims as amended are allowable over the prior art and a Notice of Allowance is earnestly solicited.

Respectfully submitted,

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